



STATE OF UTAH  
DEPARTMENT OF HEALTH

NORMAN H. BANGERTE, GOVERNOR

SUZANNE DANDY, M.D., M.P.H., EXECUTIVE DIRECTOR

533-6146  
February 11, 1986

*Mine file*  
*Set.* *Dave/Rick*  
*LMB*  
**RECEIVED**  
FEB 18 1986

T. B. Hannifan, Jr.  
General Manager Sunshine Mining Co.  
P.O. Box 250  
Eureka, Utah 84628

*Act 1049/1009*  
**DIVISION OF  
OIL, GAS & MINING**

RE: Tailings Pond Application

Dear Mr. Hannifan:

We have reviewed the Sunshine Mining December 17, 1985 Application For A Permit to Construct and Operate Tailings Ponds For The Trixie Mine. The general design and location as submitted appears to be feasible. However, one point of inadequacy needs correction and additional information must be submitted, and approved by this office prior to issuance of a construction permit. These items are as follows:

1. Permeability of clay from the Zuma pit, proposed as a liner, is unacceptably high. Another clay should be used with a coefficient of permeability of  $1 \times 10^{-6}$  cm/sec or less. A copy of the laboratory analysis must be submitted. A description of the test compaction, procedures and type of water used must be included. The water used in the test should also have the same pH and chemistry as the proposed tailings water. The compaction should be comparable to expected field compaction.
2. A map showing the complete location of stream channels, diversion ditch, and runoff areas in the pond proximity is needed. Figures 2 and 3 are incomplete, in that little detail has been provided on the fate of diverted runoff and possible existing drainage in the area of Pond C.
3. Calculations showing the capacity of the diversion ditches is needed. Drainage area used for runoff calculations is not illustrated on any map and needs verification.
4. A plan view showing tailings lines to the pond, discharge locations, overflow pipes, water reclaim system sumps and recycle lines is needed.
5. Drawings showing details how the discharge to the ponds will not disturb the lining are needed.

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6. Revised drawing showing dam protection at the overflow pipe discharge. The overflow pipe must also be located at least 1 foot above the maximum water level.
7. Plans of the recycle sumps and sump volumes are needed.
8. Sump pump specifications indicating head and flow rate are needed.
9. Detail plan of the decant system showing method to prevent solids entering the recycle system is needed.
10. Specifications on clay and dike compaction testing during construction is needed.
11. Calculations to show sufficient neutralization capacity to prevent future discharge of low pH seepage due to sulfide oxidation of the ore.
12. Description and design of groundwater monitoring or leak detection for each tailings pond.

In addition, the capacities of the ponds will be less than that stated in the report because of the two or three feet freeboard required in the ponds. These ponds are of sufficient size to warrant a three-foot freeboard until the tailings level is within five feet of the dike crest. At that time, it may be possible to reduce the freeboard to two feet.

Please contact me at 533-6146 if you desire to discuss the information requested in this letter.

Sincerely,



Steven McNeal  
Environmental Engineer  
Bureau of Water Pollution Control

SRM:pa

cc: Oil Gas and Mining  
City County Health Department of Utah Co.

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